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WEEK:

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TITLE: Eraser soln for electrophotographic offset printing plate - contains solvent for binder resin, poly:aluminium oxide and hydrogen phospho:oxide

PATENT-ASSIGNEE: MITSUBISHI PAPER MILLS LTD[MITY]

PRIORITY-DATA: 1992JP-0231810 (August 31, 1992)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
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APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
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INT-CL (IPC): B41N003/00, G03G013/28

ABSTRACTED-PUB-NO: JP 06083118A

BASIC-ABSTRACT:

The soln. is applicable to an electrophotographic printing plate making process, where (1) the plate making material comprises (a) electroconductive substrate and (b) an overcoated photoconductive layer contg. an organic photoconductor dispersed in the binding resin and (2) the image is formed by developing toner image electrostatically and dissolving off the non-image area. The soln. comprises 50-90 wt.% of solvent for the binder resin, 0.2-2.0 wt.% of (Al₂O₃ basis) poly(Al oxide) and 3-40 wt.% of hydrogen phosphooxide.

USE/ADVANTAGE - The eraser effectively dissolves residues of ink and protective gum, and keeps aquophilic nature of the substrate surface. It provides prints with clear background.

In an example, an eraser consists of 6.5 pts. (by wt.) butyl acrylate/butyl methacrylate/methacrylic acid copolymer (1/1/1 by wt. ratio; mol.wt. = 15,000), 1.5 pts. phthalocyanine (non-metallised), 70 pts. 1,4-dioxane, 12 pts. butyl acetate and 10 pts. 1-propanol.

CHOSEN- Dwg.0/0

DRAWING:

TITLE- ERASE SOLUTION ELECTROPHOTOGRAPHIC OFFSET PRINT PLATE
TERMS: CONTAIN SOLVENT BIND RESIN POLY ALUMINIUM OXIDE HYDROGEN
PHOSPHO OXIDE

DERWENT-CLASS: A89 G08 P75 P84 S06

CPI-CODES: A12-L05D; A12-W07C; G05-F; G06-A06; G06-D05A; G06-F06; G06-G08;

EPI-CODES: S06-A01X;

UNLINKED- ; 1057U
DERWENT-
REGISTRY-
NUMBERS:

ENHANCED- Polymer Index [1.1] 017 ; G0351*R G0340 G0339 G0260 G0022 D01
POLYMER- D11 D10 D12 D51 D53 D58 D63 D87 F41 G0395*R G0384 D88 ;
INDEXING: R00460 G0306 G0271 G0260 G0022 D01 D12 D10 D51 D53 D58 D60
D84 F36 F35 ; H0033 H0011 ; S9999 S1605*R ; P0088

Polymer Index [1.2] 017 ; ND01 ; Q9999 Q8617*R Q8606 ; Q9999
Q8800 Q8775 ; Q9999 Q6791 ; Q9999 Q7034*R

Polymer Index [1.3] 017 ; B9999 B5094 B4977 B4740

Polymer Index [1.4] 017 ; R00302 D01 D11 D10 D50 D83 F27 F26 ;
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POLYMER-MULTIPUNCH-CODES-AND-KEY-SERIALS:

Key Serials: 0224

0231

0419

0496

0503

0531

2318

2506

2585

2682

2701

2806

2808

2813

3152

Multipunch Codes:

017

034

04-

051

074

075

076

077

081

28&

316

398

44&

575

583

589

59&

603

609

658

659

660

678

725

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PATENT ABSTRACTS OF JAPAN

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(21)Application number : **04-231810**

(71)Applicant : **mitsubishi paper mills ltd**

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(54) ERASING LIQUID FOR ELUTION TYPE ELECTROPHOTOGRAPHIC LITHOGRAPHIC PRINTING PLATE

(57)Abstract:

PURPOSE: To realize an erasing liquid the elution type electrophotographic lithographic printing plate with which not only the image correcting/erasing operation is facilitated in a short time and the re-appearance of a printed image is prevented in the erased part in a state where a gum-coating film or printing ink is stuck, but also satisfactory printed matters are obtained without generating areas where the erasing liquid in a supporting body of the peripheral non- image part is stuck to and without generating the stains of the said area.

CONSTITUTION: A photoconductive layer incorporating at least an organic photoconductive compound and a binding resin on a conductive supporting body. This liquid is the erasing liquid for the electrophotographic lithographic printing plate with which the non-image part- photoconductive layer except of a toner image part is eluted and removed to make a printing plate after the toner image is formed by the electrophotographic method. The erasing liquid for the electrophotographic lithographic printing plate contains at least a 50 to 90wt. % soluble solvent of this binding resin, a 0.3 to 2.0wt. % polyaluminium hydroxide compound in aluminium oxide anhydride equivalent and a 3 to 40wt. % acidic phosphorus compound.

LEGAL STATUS

[Date of request for examination]

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the examiner's decision of rejection or
application converted registration]

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CLAIMS

[Claim(s)]

[Claim 1] It comes to prepare the photoconduction layer which contains an organic photoconductivity compound and binding resin at least on a conductive base material. It is the elimination liquid in the elution mold electrophotography lithography version which carries out elution removal of the non-image section photoconduction layers other than the toner image section, and is used as the printing version after making a toner image form by the xerography. Elimination liquid for the elution mold electrophotography lithography versions characterized by containing [this binding resin fusibility solvent] 0.3 - 2.0 % of the weight, and an acid phosphorus oxide compound for the Pori aluminum-hydroxide compound three to 40% of the weight by aluminum-oxide anhydride conversion 50 to 90% of the weight at least.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the elimination liquid in the elution mold electrophotography lithography version which carries out elution removal of the non-image section photoconduction layers other than the toner image section formed of the xerography, and is used as the printing version. Correction elimination of the image section in the condition that printing ink is not wiped away in the condition that the desiccation coat of platemaking processing termination aftercare gum adhered, or printing can carry out easily and quickly. It is related with the elimination liquid for the elution mold electrophotography lithography versions which printing dirt does not generate into an image elimination part in subsequent printings, without invading the hydrophilic property of a support surface.

[0002]

[Description of the Prior Art] The electrophotography lithography version makes the toner electrodeposition section the image section, and carries out hydrophilization of the non-image section photoconduction stratification plane by the hydrophilization agent, or carries out whether processing liquid removes a photoconduction layer and a hydrophilic base material is made to express, and uses it as the printing version. Although especially the latter is used for the heavy printing field for high print durability This non-image section elution mold electrophotography lithography version comes to prepare the photoconduction layer which generally consists of photoconductivity matter and oleophilic binding resin of alkali fusibility on a conductive base material. Make a toner image form on a photoconduction layer with an electrophotography method, make non-image section photoconduction layers other than the toner image section solubilize by making a toner into a resist by the eluate which contains alkali chemicals etc. in an elution process, and it is eluted. After carrying out washing removal of the solubilized photoconduction layer component which remains in a printing plate in continuing rinse down stream processing, protection gum processing is usually carried out. These platemaking processings are usually continuously engraved to protection gum processing using an automatic machine.

[0003] After dissolving the protection gum coat of a form plate with dampening water and removing on the occasion of printing, it is made by making printing ink adhere only to the image section according to the difference of the compatibility of the printing ink to the image section and the non-image section, and dampening water. However, when not printing only the specific image of a printing plate, or when small-changing a report in generating of the printing dirt under printing, especially newspaper printing, it may be necessary to make immediately into ink rebounding nature the printing plate part which can serve as an unnecessary printing image, without exchanging the printing version. Then, as an approach of making the image section of the electrophotography lithography version (non-image section photoconduction layer hydrophilization mold) the non-image section of insensible oily skin, the approach of covering an image section front face with the hydrophilic matter like a publication in JP,48-5681,B, 50-31484, a 54-20882 official report, etc., the approach of removing the image section (toner

layer) physically or chemically to JP,49-6230,B etc., and carrying out hydrophilization like a publication, at it, etc. are learned conventionally.

[0004] Among these, when image section hydrophilic-property object coating was used for the non-image section elution mold printing version at least, it was inferior to the print durability of a correction part, and even if it is ink rebounding nature the start of printing, as a result of a correction agent hydrophilization coat's wearing out exfoliating gradually or a hydrophilic property's falling by the printing passage of time, it had the case where the image of a correction part appeared in printed matter. On the other hand, if an image section removal method has perfect removal of the image section, it has the same printing nature as the original non-image section fundamentally, but when it is going to remove the image section in physics (machine), it may also become a base material hydrophilization processing side being destroyed, and water retention falling, becoming printing dirt to the correction image section circumference, and the reinforcement of a base material falling in fault processing, and having a bad influence on print durability. In that respect, although it was possible for a chemical image section removal method to have been able to remove the correction image section, without affecting a base material, and to have made the non-image section act, image section binding resin might dissolve depending on the elimination agent presentation, and it might spread near, and might become printing dirt to the correction image section circumference too.

[0005]

[Problem(s) to be Solved by the Invention] This invention comes to prepare the photoconduction layer which contains an organic photoconductivity compound and binding resin at least on a conductive base material. It is related with the elimination liquid used for the elution mold electrophotography lithography version which carries out elution removal of the non-image section photoconduction layers other than the toner image section, and is used as the printing version after making a toner image form by the xerography. The correction elimination activity of the image section in the condition that printing ink is not completely wiped away in the condition that the desiccation coat of platemaking processing termination aftercare gum adhered, or printing not only can carry out easily and quickly, but It is in offering the elimination liquid for the elution mold electrophotography lithography versions which does not have generating of the printing dirt of an image elimination part in several subsequent multi-sheet printings, without invading the hydrophilic property of a support surface.

[0006]

[Means for Solving the Problem] this invention persons come to prepare the photoconduction layer which contains an organic photoconductivity compound and binding resin at least on a conductive base material, as a result of inquiring wholeheartedly, in order to solve the above-mentioned problem. It is the elimination liquid in the elution mold electrophotography lithography version which carries out elution removal of the non-image section photoconduction layers other than the toner image section, and is used as the printing version after making a toner image form by the xerography. The elimination liquid for the elution mold electrophotography lithography versions which contains 0.3 - 2.0 % of the weight and 3 - 40 % of the weight of acid phosphorus oxide compounds by aluminum-oxide anhydride conversion attained this binding resin fusibility solvent in the Pori aluminum-hydroxide compound 50 to 90% of the weight at least. If image restoration is performed using the elimination liquid of this invention, while a binding resin fusibility solvent carries out the humid dissolution of a protection gum coat or the printing ink, and exfoliating a toner and dissolving a photoconduction layer, an acid phosphorus oxide compound and/or the Pori aluminum-hydroxide compound can interact with a support surface firmly even from from [after a metaphor photoconduction layer ink acceptance component remains slightly], and the front face of a hydrophilic property can be made to form further.

[0007] This invention is explained below at a detail. The elimination liquid for the elution mold electrophotography lithography versions of this invention is a liquefied object which comes to contain the electrophotography photoconduction layer binding resin fusibility solvent, the Pori aluminum-hydroxide compound, and the acid phosphorus oxide compound of the amount of specific range at least. The binding resin fusibility solvent as used in the field of this invention is a solvent which dissolves the binding resin used for the elution mold electrophotography lithography version photoconduction layer

1% of the weight or more. Since it is overwhelming to be carried [in / newspaper printing etc. / especially] out on a printing machine printing cylinder in the platemaking processing termination back of the printing version which uses image elimination, the toner and the protection gum coat are carrying out the laminating of the correction part in fact, or it is desirable in it being the solvent with which some have the engine performance which is made to also dissolve or swell these at the time of correction, and can remove them at it since printing ink has adhered at least.

[0008] Although the binding resin fusibility solvent used for the elimination liquid of this invention is based also on the class of binding resin which constitutes the photoconduction layer of the image section to eliminate As a general example, a methanol, ethanol, 1-propanol, 2-propanol, 1-butanol, 2-methyl-1-propanol, 2-butanol, Alcohols, such as 1-pentanol and benzyl alcohol, an oxo-run, Cyclic ether, such as oxane and 1,4-dioxane, 2-methoxyethanol, 2-ethoxyethanol, 2-(1-propoxy) ethanol, 2-(1-butoxy) ethanol, Glycol ether, such as 1-methoxy-2-propanol and 1-ethoxy-2-propanol Water-soluble organic solvents, such as N,N-dimethylformamide besides ketones, such as fatty acid ester, such as methyl lactate, ethyl lactate, acetic-acid 1-propyl, and acetic-acid 1-butyl, propanone, and butanone, N,N-dimethylacetamide, and dimethyl sulfoxide, etc. are mentioned.

[0009] A methanol, ethanol, 1-propanol, 2-propanol, 1-butanol, 2-methoxyethanol, 2-ethoxyethanol, an oxo-run, N,N-dimethylformamide, N,N-dimethylacetamide, and dimethyl sulfoxide are desirable among the above-mentioned binding resin fusibility solvent, and a methanol, ethanol, 1-propanol, 2-propanol, and 1-butanol are especially good. These binding resin fusibility solvents may be used independently, and may carry out mixed use of the two or more sorts. Moreover, you may use for at least one kind of the above-mentioned binding resin fusibility solvent combining the other solvent which includes water. If mixed liquor with the above-mentioned binding resin fusibility solvent has dissolution ability even if it cannot dissolve the binding resin concerning this invention with any solvents other than a binding resin fusibility solvent, it shall be regarded as the binding resin fusibility solvent concerning this invention.

[0010] The content of the binding resin fusibility solvent in the elimination liquid of this invention has 50 - 90 good % of the weight. if there are few contents of a binding resin fusibility solvent than 50 % of the weight, it may become it is remarkable and slow, and erasing speed may resemble [that it takes time amount and] elimination occasionally, may make it it, and may be unable to eliminate an image Conversely, possibility of the permeability from about [ending an elimination activity] and an elimination liquid spreading means speeding up before blanking time will become short too much seemingly and the acid phosphorus oxide compound and/or the Pori aluminum-hydroxide compound which are other components of the elimination liquid of this invention will discover the base material of an image elimination part and sufficient compatibility, if a binding resin fusibility solvent exceeds 90 % of the weight, and incorrect-eliminating to a circumference part not eliminating becomes high. The still more desirable content of the binding resin fusibility solvent in the elimination liquid of this invention is 70 - 90 % of the weight.

[0011] The second component of the elimination liquid of this invention is the Pori aluminum-hydroxide compound. Completely, the Pori aluminum-hydroxide compound has the operation which secures the water retention of the image section support surface which remains without being removable, and brings about the effectiveness of making the hydrophilic property more than the non-image section and an EQC discovering. Moreover, the image section photoconduction layer component which dissolved with the binding resin fusibility solvent cannot be wiped away, and even if it carries out the reattachment to a non-image section base material, the fall of the water retention of the part can be prevented. the colloid hydrated alumina of the pseudo-boehmite system to which the Pori aluminum-hydroxide compound concerning this invention made water the dispersion medium, and number - it is the macromolecule nature polykaryotic condensation aluminum hydroxide which consists of an aluminum atom of more than ten, each presents a positivity, and organic-acid anions, chlorine ions, etc., such as an acetic acid, are stable. Colloid hydrated alumina has desirable shape of high feathers and fibrous colloid of the water retention effectiveness.

[0012] The content of the Pori aluminum-hydroxide compound used for the elimination liquid of this

invention is 0.3 - 2.0 % of the weight in aluminum-oxide anhydride (aluminum $2O_3$) conversion, and its further 0.5 - 1.5 % of the weight is good. If there are few Pori aluminum-hydroxide compounds than 0.3 % of the weight, it becomes impossible to secure the above-mentioned water retention, and the image of the correction elimination section may appear again in printing. When the Pori aluminum-hydroxide compound content exceeds 2.0 % of the weight, it becomes impossible conversely, for erasing speed to become slow or to eliminate completely. When the colloid hydrated alumina of a pseudo-boehmite system is especially used as a Pori aluminum-hydroxide compound, it is in a side Rika thickening inclination 1.5% of the weight, and if 2 % of the weight is exceeded, the fluidity of elimination liquid will get worse and considerable limitation of the spreading means will be carried out.

[0013] The third component of the elimination liquid of this invention is an acid phosphorus oxide compound. An acid phosphorus oxide compound brings about the operation which raises the water retention of a support surface. As an example of the acid phosphorus oxide compound concerning this invention Hypophosphorous acid, phosphorous acid, a phosphoric acid and a pyrophosphoric acid, the Tori phosphoric acid, the Tori metaphosphoric acid, Inorganic-acid nature phosphorus oxide compounds, such as polymerization phosphoric acids, such as a tetra-metaphosphoric acid and hexametaphosphoric acid, The 1-aminoethane -1, 1-diphosphonic acid, friend NOTORI (methylene phosphonic acid), An ethylenediamine tetrapod (methylene phosphonic acid), guanidine diphosphonic acid, Organic-acid nature phosphorus oxide compounds, such as triethylenetetramine hexa (methylene phosphonic acid), 1-hydroxy ethane -1, 1-diphosphonic acid, a vinyl (Pori) phosphoric acid, and phytic acid, are mentioned. Especially phosphorous acid, a phosphoric acid, and a pyrophosphoric acid are suitable among the acid phosphorus oxide compound concerning this invention.

[0014] The content of the acid phosphorus oxide compound used for the elimination liquid of this invention is 3 - 40 % of the weight, and is 10 - 30 % of the weight more preferably. If there are few acid phosphorus oxide compounds than 3 % of the weight, it becomes impossible to secure about [that possibility of condensing without the Pori aluminum-hydroxide compound distributing in a solvent stably becomes high], and water retention, and the image of the correction elimination section may appear again in printing. Conversely, if an acid phosphorus oxide compound exceeds 40 % of the weight, it is not desirable even if it takes the adhesion to the skin, clothes, etc. into consideration, while the stability at the time of about [that the effectiveness beyond it is not discovered] and acidity becoming high too much, and considering as elimination liquid falls. Moreover, as for the acid phosphorus oxide compound in the elimination liquid of this invention, it is desirable to add more than the amount of 5 times to the Pori aluminum-hydroxide compound, and more than its amount of further 10 times is good. Although based also on an involving-in this invention class, in an organic solvent, in general, there are near the amount of 1 to 4 times and a case where it thickens remarkably in an amount two to 3 times especially, and if it thickens, regardless of the elimination effectiveness, spreading of the elimination liquid in a homogeneity component will become difficult.

[0015] You may mix with an acid phosphorus oxide compound with water beforehand in order to raise a miscibility with the above-mentioned binding resin fusibility solvent. Moreover, in order to raise the stability of the Pori aluminum-hydroxide compound concerning this invention, acids other than these may be used together. As the example, water soluble organic acids, such as a hydrofluoric acid, fluoroboric acid, a boric acid, a hydrochloric acid, perchloric acid, a nitric acid, a sulfurous acid, a sulfuric acid, the inorganic acid of a molybdic acid and formic acid, an acetic acid, a lactic acid, a glycolic acid, an amber acid, an apple acid, citric acid, and a tartaric acid, are mentioned. Little addition of the thing in which water was made to dissolve beforehand nonionic hydrophilic-property polymers, such as polyvinyl alcohol, a polyvinyl pyrrolidone, carboxymethylcellulose, and a dextrin, by request further may be carried out to the elimination liquid of this invention, and in order to adjust the spread nature of elimination liquid further, surfactants other than anionic may be added. In addition, a coloring agent, antiseptics, perfume, or a hydrophilic low molecular weight compound can also be added.

[0016] What is necessary is just to carry out addition mixing of the other acids at the last according to an acid phosphorus oxide compound and a request, adding the Pori aluminum-hydroxide compound and carrying out high-speed distribution into the binding resin fusibility solvent concerning this invention, if

it hits preparing the elimination liquid of this invention. The liquid feed zone material to the elimination image section is materials, such as a brush, a cotton swab, sponge, and felt, and even if it is close with the image which does not want to eliminate the elimination section in a small field, the member which has the configuration which can supply the elimination liquid of this invention only to the elimination section is suitable for it. Elimination liquid is pressed and ground against an elimination part with this member, and it carries out until an image eliminates completely.

[0017] Next, the elution mold electrophotography lithography version concerning this invention is explained. On a conductive base material, the elution mold electrophotography lithography version concerning this invention comes to prepare the photoconduction layer which contains an organic photoconductivity compound and binding resin at least, and can form a toner image with the usual electrophotography development method. Metal plates, such as a sheet plastic which is used for the elution mold electrophotography lithography version, and has a conductive front face as a base material, and aluminum, zinc, copper-aluminum, chromium-copper-aluminum, chromium-copper-stainless steel, etc. are used as a base, and, as for the field in which a photoconduction layer is prepared at least, the conductive base material with which hydrophilization processing was performed is mentioned. An aluminum plate is suitably used also in these bases. This aluminum plate may use aluminum as a principal component, and may contain the different element of a minute amount, and the material of well-known and official business can be conventionally used for it suitably.

[0018] a desired front face -- in order to give description to the base material side in which a photoconduction layer is prepared, graining and anodizing by the well-known approach is desirable. In advance of graining processing, a request twists in a surfactant or an alkali water solution, and cleaning processing is carried out. There are a mechanical surface roughening method, an electrochemical-surface-roughening method, a chemical surface selective dissolution method, etc. in a graining art. Thus, if needed, the base by which surface roughening was carried out processes [alkali-etching-] and processes [neutralization-], and is used. In order to make an oxide film form in the front face, anodizing of the processed base is carried out. As an electrolyte used for anodizing, those mixed acids, such as a sulfuric acid, a phosphoric acid, and oxalic acid, etc. are mentioned, as for the amount of anodic oxide films, 0.1-10g/m² is good, and the range of 2 of further 1-6g /is suitable for it m.

[0019] Thus, a desired electrophotography photoconduction layer is prepared on the obtained conductive base material, and the elution mold electrophotography lithography version is obtained. Although an organic photoconductivity compound and binding resin are contained in the photoconduction layer of the elution mold electrophotography lithography version concerning this invention at least and an organic photoconductivity compound can select and use the well-known matter for it conventionally, the photoconductivity phthalocyanine pigment which it is [phthalocyanine pigment] little, and desired electrophotographic properties are obtained [phthalocyanine pigment], and does not hurt the solubility of binding resin with elimination liquid is used advantageously. Since it corresponds to the scan exposure by the light sources, such as semiconductor laser, especially, a chi type non-metal phthalocyanine and titanylphthalocyanine are suitable.

[0020] In the photoconduction layer of the elution mold electrophotography lithography version used for this invention, binding resin is further used together. In case it uses as a printing version, it must be the high molecular compound in which soluble or distribution to the eluate from the need of satisfying required electrophotographic properties and finally removing photoconduction layers other than the image section is possible. An acid-anhydride radical or a carboxyl group content monomer content copolymer can use it advantageously among the high molecular compound which has such engine performance. As a monomer content copolymer which has an acid-anhydride radical, the copolymer of styrene and a maleic anhydride is desirable. as the monomer content copolymer which has a carboxyl group -- duality with the copolymer of styrene and maleic-acid monoester, an acrylic acid or methacrylic acids, those alkyl ester, aryl ester, or aralkyl ester -- the above copolymer is desirable. Moreover, the copolymer of vinyl acetate and a crotonic acid is also good. Binding resin may be independent, or may mix and use two or more sorts.

[0021] According to a conventional method, the elution mold electrophotography lithography version

used for this invention applies a photoconduction layer on a conductive base material, and is obtained. Although dissolution distribution is carried out and each component which constitutes a photoconduction layer is produced to a suitable solvent, a disperser distributes to 0.2 micrometers or less more preferably the mean particle diameter of 0.4 micrometers or less, and coating liquid is used, when an organic photoconductivity compound uses an insoluble component for a solvent like a phthalocyanine. Moreover, in a photoconduction layer, if needed, the additive of a plasticizer, a surfactant, and others can be added in order to improve film physical properties other than an organic photoconductivity compound and binding resin, such as the flexibility of a photoconduction layer, and a spreading surface state. Thus, spreading desiccation of the produced coating liquid can be carried out on a base material by the well-known approach, and the elution mold electrophotography lithography version can be obtained. Coating liquid concentration (or viscosity), and the solvent to be used and its mixing ratio are suitably chosen from a spreading method, desiccation conditions, etc.

[0022] The elution mold electrophotography lithography version used by this invention can make a toner image form by well-known actuation. That is, make it charged uniformly substantially in a dark place, an electrostatic latent image is made to form by image exposure, and toner development is carried out to after an appropriate time. As the exposure approach, the scan exposure by the reflective image exposure which made the light source the xenon lamp, the tungsten lamp, the fluorescent lamp, etc., the adhesion exposure through a diapositive film, a laser beam, light emitting diode, etc. is mentioned. Next, an electrostatic latent image is developed with a toner. As the development approach, both the developing [dryly] method and a liquid development can be used. The liquid development is especially suitable to be able to form a detailed toner image and produce the printing version with sufficient repeatability. Furthermore, although the negative / positive development by the positive / positive development by forward development, and the subvoltage development of impression of suitable bias voltage are also possible, if scan exposure is carried out by the laser beam, toner development will be performed in the image exposure section in reversal development. The formed toner image can be established by the well-known establishing method. Thus, an eluate removes a non-image section photoconduction layer by making the formed toner image into a resist, and the printing version can be produced.

[0023] The elution mold electrophotography lithography version which completed toner development is eluted in a non-image section photoconduction layer by the eluate next. The water solution which contains alkali chemicals at least and has buffer capacity in a last preparation pH region as an eluate is desirable. Although organic alkali chemicals, such as inorganic alkali chemicals, such as alkali metal of the silicate expressed by general formula $\text{SiO}_2/\text{M}_2\text{O}$ (M expresses an alkali-metal atom), an alkali-metal hydroxide, a phosphoric acid, or carbonic acid and ammonium salt, ethanolamines, and dialkyl amine, and such mixture can be used as alkali chemicals, especially silicate is advantageously used, in order for suitable alkali reinforcement and high pH to show strong buffer capacity. 1.3-2.2 are suitable for the final mole ratio ($\text{SiO}_2/\text{M}_2\text{O}$) of the total amount of an alkali-metal oxide to the silicic acid at the time of considering as an eluate. As for pH of an eluate, 11.8-13.5 are good, and it is 12.0-13.0 more preferably. many -- several sheets -- a connoisseur -- it is desirable to add a desired elution replenisher timely on the occasion of a version etc., and to aim at improvement in elution activity.

[0024] The elution mold electrophotography lithography version which solubilized the non-image section photoconduction layer removes the solubilization photoconduction layer component which remains in a printing plate by the rinse, further; they are the purposes, such as improvement in the reinforcement for a blemish of a printing plate, and non-image section desensitization, and protection gum processing is carried out by request. All of these agents can use a well-known thing for gum liquid at the rinse which can be used for this invention including a hydrophilic self-coat nature high molecular compound, an acid compound, antiseptics, a surfactant, etc., including a weak base nature buffer, antiseptics, a surfactant, etc.

[0025]

[Example] Although an example explains this invention still more concretely, this invention is not limited to the following example; unless the main point is exceeded. In addition, the concentration of the

Pori aluminum-hydroxide compound aqueous liquid concerning this invention is an aluminum-oxide anhydride reduced property.

[0026] It was immersed in 60 degrees C and a 10-% of the weight sodium-hydroxide water solution, and example 1JIS1050 aluminum (0.3mm thickness) was etched so that the amount of aluminum dissolutions might become 6 g/m². After rinsing, it was immersed in the nitric-acid water solution for 1 minute 30% of the weight, neutralized, and rinsed enough. Next, electrolysis surface roughening was performed for 35 A/dm² or 50 seconds in the 3.0-% of the weight hydrochloric-acid water solution, and it rinsed, after being immersed into 50 degrees C and a 20-% of the weight sulfuric-acid water solution and washing a front face. Furthermore, performed anodizing in the 20-% of the weight sulfuric-acid water solution, the aluminum oxide film was made to form in a front face, and the base material for the printing versions was produced by drying after rinsing. After [which serves as solid content coverage 4.4 g/m² by extrusion coater] carrying out appearance spreading, 90 degrees C of photoconductivity constituents given in Table 1 which this base material surface treatment side was made to distribute in paint SHIEKA for 1 hour were dried for 3 minutes, and the elution mold electrophotography lithography version A was produced.

[0027]

[Table 1]

組 成 物	重量部
ブチルメタクリレート／ブチルアクリレート／メタクリル酸 共重合体 (単量体重量比1 : 1 : 1、分子量1.5万)	6.5
λ型無金属フタロシアニン	1.5
1,4-ジオキサン	70
酢酸1-ブチル	12
2-プロパノール	10

[0028] After shading the obtained elution mold electrophotography lithography version A and warming at 50 degrees C for 2 hours, it cooled radiationally to ordinary temperature. Scan image exposure was carried out using the semiconductor laser (780nm) after [when surface potential becomes abbreviation +280V about this printing version in a dark place] carrying out appearance electrification, liquid reversal development was performed, using a positive charge toner (the Mitsubishi Paper Mills, Ltd. make, LOM-ED III) immediately, cold blast desiccation was carried out, after removing a toner dispersion medium, the toner particle was further established at 90 degrees C, and adhesion formation of the toner image was carried out on the photoconduction layer. About this toner development finishing printing version, a non-image section photoconduction layer is eluted using an alkaline developer (the Fuji Photo Film make, trade name:DP-4), and after tap water fully washed a printing plate, protection gum liquid (the Fuji Photo Film make, trade name:GU-7) was applied and dried.

[0029] After adding into both binding resin fusibility solvent mixed liquor and fully distributing the Pori aluminum-hydroxide compound shown in Table 2, while the pyrophosphoric acid diluted in water was dropped, it stirred strong, and prepared, and the elimination liquid (elimination liquid A) distributed to homogeneity was obtained. Next, after grinding the image section of the printing version obtained in the top against the elimination liquid dipped in the point of a cotton swab and eliminating it from on a gum coat, the elimination section was wiped away with the cloth dipped in water, and gum liquid was applied again. The image was eliminated, so that the support surface of a part which elimination liquid contacted was not eroded with elimination liquid and it could not distinguish from the elimination liquid non-contact section at all.

[0030]

[Table 2]

消 去 液 A 処 方	重量部
ポリ水酸化アルミニウム化合物7重量%液 (触媒化成工業(株)製、商品名:カタロイド-A S-1)	10
エタノール	45
2-メトキシエタノール	20
ピロリン酸	20
イオン交換水	5

[0031] elimination was completed -- it attached the printing version and printed with the offset press (Ryobi 3200 MCD). Consequently, as for the elimination part, by printing (5000 sheets), generating of a greasing was not usually seen for the part to which the elimination liquid of the circumference non-image section base material adhered at all, either, without an image appearing again. Moreover, although 5000 more sheets were printed after applying elimination liquid A to the image section which carried out eradication removal of the ink of a printing plate lightly and eliminating an image with ink removal liquid, the good printed matter which is satisfactory at all was obtained. furthermore -- in order to see the water retention of an elimination section support surface, without it carries out gum length of this printing version -- 50 degrees C -- warming -- without an image appearing again in an elimination part, when 5000 sheets were printed again the back, into the part of that circumference non-image section base material to which elimination liquid adhered at least, a greasing did not occur at all, but good printed matter was obtained.

[0032] Elimination liquid given in Table 3 was prepared by the same approach as example 2 example 1, and the elimination liquid B distributed to homogeneity was obtained. It printed immediately, without eliminating and carrying out gum length of the image section of the printing version which carried out production platemaking, and carrying out it using elimination liquid B, by the example 1 and these conditions in the example 1. consequently -- usually -- printing -- the warming same, of course as an example 1 -- without an image appearing again in an elimination part, even if after re-printed, generating of a greasing was not seen for the part to which the elimination liquid of the circumference non-image section base material adhered at all, either, but good printed matter was obtained like the example 1.

[0033]

[Table 3]

消 去 液 B 処 方	重量部
ポリ水酸化アルミニウム化合物10重量%液 (日産化学工業(株)製、商品名:アルミナゾル-200)	6
メタノール	45
2-プロパノール	25
フィチン酸 (50重量%水溶液)	24

[0034] The elimination liquid which the phytic acid used in the example 3 example 2 was used as the phosphoric acid, and also has a presentation given in Table 4 using the same Pori aluminum-hydroxide compound and a binding resin fusibility solvent (rate mixed liquor of said) was prepared. Next, it eliminated at a time two images of the printing version which carried out production platemaking in the example 1 by the same approach as an example 1, respectively, one side applied gum liquid again, after wiping away the elimination section with the cloth dipped in water after elimination (elimination section A), and another side was dried, with elimination liquid left (elimination section B). The elimination activity was uniformly done 30 seconds, when eliminated within 30 seconds, and when it was not able to eliminate in 30 seconds and has eliminated within the limit of 1 minute, it was stopped. the result of blanking time and erasability (A can be set in the elimination section A -- usually -- reaching -- warming -- B with the passage of time can be set in the elimination section B -- the image re-appearance of printing and the evaluation result of a greasing generating condition are usually shown) is also

collectively described in Table 4.

[0035]

[Table 4]

消去液	有効成分重量濃度 及び溶剤の酸			消去時間	消去性 A B	
C	0	95	5	壹 参 四 参 四 四 四 四 四 四 四 四 四 四 四 四	○	×
D	0.2	90	5		○	△
E	0.5	90	5		○	○△
F	1.0	80	5		○	○
G	2.0	70	5		○	○
H	2.5	70	5		○	○
I	1.0	75	0		×	×
J	1.0	75	2		△	×
K	1.0	75	10		○	○
L	1.0	70	20		○	○
M	1.0	60	30		○	○
N	1.0	50	40		○	○
O	1.0	50	44		×	×
P	1.0	60	10		○	○
Q	1.0	40	10		×	×
R	1.0	0	10		×	×

註] 総和が100部未満の配合は、不足分を水で補填。消去時間は、壹;10秒以内 式;20秒以内 参;30秒以内に消去出来、四;30秒では画像が残存することを表す。

[0036] If the content of the Pori aluminum-hydroxide compound is less than (elimination liquid C and D; outside of this invention) 0.3 % of the weight the time amount which an elimination activity takes -- short -- without it carries out gum length of this printing version, without an image's being completely eliminated seemingly by less than [**** 10 second], and an image appearing again in an elimination part like an example 1 in the elimination section A -- 50 degrees C -- warming, even if it prints again the back As for the elimination part, the good printed matter with which generating of a greasing is not seen, either was completely obtained also for the part to which the elimination liquid of the circumference non-image section base material adhered, of course. However, as for the image part eliminated using elimination liquid C, an elimination image began to be gradually printed from printing initiation, and the good printed matter which the elimination image re-appeared and was eliminated to the last was not partially obtained [in / especially / the elimination section B] in elimination liquid D.

[0037] Then, when the Pori aluminum-hydroxide compound made it increase, elimination image printing nature improved in elimination conditions without gum **** spreading especially. With the elimination liquid (elimination liquid G and H) contained at least 2% of the weight, especially the Pori aluminum-hydroxide compound without it usually carries out gum length not only of printing but this printing version also in the part the configuration of the image eliminated faintly is accepted to be -- 50 degrees C -- warming, without the image of a skill elimination part appearing again, even if it prints again the back The good printed matter in which the part to which the elimination liquid of the circumference non-image section base material adhered does not have generating of a greasing; either was obtained. However, although the elimination liquid which contains the Pori aluminum-hydroxide compound 2% of the weight or more had intense thickening, and it was good when supplying elimination liquid with a cotton swab like an example 1 since the fluidity was remarkably spoiled especially for it at 2.5 % of the weight, elimination liquid did not ooze out with the felt which is general elimination liquid feed zone material. Moreover, blanking time required about 1 twice [about] as many minute as the elimination liquid G which contains the Pori aluminum-hydroxide compound 2% of the weight.

[0038] Elimination behavior changed with the contents of an acid phosphorus oxide compound similarly. the elimination liquid (elimination liquid I; outside of this invention) with which the phosphoric acid which is especially an acid phosphorus oxide compound does not coexist -- blanking time -- short -- although the image was seemingly eliminated completely by less than [**** 10 second], the printed matter which an elimination image began to be printed from immediately after printing initiation, and was eliminated to the last could not be good. Moreover, although good printed matter was obtained without a phosphoric-acid content's appearing at 2 % of the weight (elimination liquid J; outside of this invention), and an image usually re-appearing in the image elimination section in printing, when this printing version was warmed, an elimination image began to be printed from immediately after printing initiation, and the printed matter with which the elimination image was eliminated to the last was not obtained.

[0039] Although the time amount which elimination image printing nature improves and an elimination activity takes to a phosphoric-acid content at 40 % of the weight (elimination liquid N; this invention) exceeds 30 seconds even if it makes a phosphoric-acid content increase, also in the part the configuration of the image eliminated faintly is accepted to be without it usually carries out gum length not only in printing also in any of the elimination sections A and B -- 50 degrees C -- warming -- after -- again -- even printing -- the good printed matter in which the part to which the elimination liquid of the circumference non-image section base material adhered does not have generating of a greasing, either was obtained, without the image of an elimination part appearing again.

[0040] However, since erasing speed became still slower and blanking time was not able to eliminate an image in 1 minute at least if the content of an acid phosphorus oxide compound becomes 44% of the weight (elimination liquid O; outside of this invention), the printed matter with which the image was eliminated was not obtained. Moreover, even if the Pori aluminum-hydroxide compound and phosphoric-acid content are within the limits of this invention Not to mention the elimination liquid R (outside of this invention) which will cause delay of blanking time similarly if a binding resin fusibility solvent content decreases, and does not contain a binding resin fusibility solvent at all Since an image was not able to eliminate [blanking time] the elimination liquid Q (outside of this invention) with which it is contained only at most 40% of the weight in 1 minute, either, the printed matter with which the image was eliminated similarly was not obtained.

[0041] It compares with the elimination liquid besides this invention above. A binding resin fusibility solvent, the Pori aluminum-hydroxide compound, And the elimination liquid (elimination liquid E-H and K-P) which has all the contents of an acid phosphorus oxide compound within the limits of this invention without it can finish an elimination activity within 30 seconds in general and an image re-appears into an elimination part like an example 1 in printing -- warming -- an elimination part is natural even if it prints again the back -- the good printed matter with which generating of a greasing is not seen for the part to which the elimination liquid of the circumference non-image section base material adhered at all, either was obtained. Moreover, when printing was resumed after applying these elimination liquid to the image section which once stopped the printing machine like the example 1 using elimination liquid M, and carried out eradication removal of the ink of a printing plate lightly and eliminating an image, good printed matter was obtained, without an image re-appearing into an elimination part.

[0042] After adding into both binding resin fusibility solvent mixed liquor and fully distributing the Pori aluminum-hydroxide compound shown in example 4 table 5, while the phosphoric acid diluted in water was dropped, it stirred strong, and prepared, and uniform and transparent elimination liquid (elimination liquid S) was obtained. Next, gum liquid was applied to the whole surface, after attaching elimination liquid to the cotton swab and eliminating the suitable image section of the printing version which carried out production platemaking in the example 1. The support surface of a part which elimination liquid contacted was not eroded with elimination liquid, but the image was eliminated, so that it could not distinguish from the elimination liquid non-contact section at all.

[0043]

[Table 5]

消 去 液 S 処 方	重量部
ポリ水酸化アルミニウム化合物 10重量%液 (水澤化学工業(株)製、商品名:P.A.C.)	18
メタノール	40
N,N-ジメチルアセトアミド	20
1-プロパノール	18
リン酸 (85重量%液)	4

[0044] It printed with this offset press that attached the printing version and was used in the example 1. Consequently, as for the elimination part, generating of a greasing was not seen for the part to which the elimination liquid of the circumference non-image section base material adhered at all like the example 1, either, without an image appearing again. next -- without it carries out gum length of this printing version -- 50 degrees C -- warming -- without an image re-appearing into an elimination part, when printed again the back, generating of a greasing was not seen for the part to which the elimination liquid of that circumference non-image section base material adhered at all, either, but good printed matter was obtained completely like the example 1.

[0045] The elimination liquid T using the aluminium phosphate 4.3 weight section (and ion-exchange-water 17.7 weight section) of the Pori aluminum-hydroxide compound and phosphoric acid which were used with example of comparison 1 example 4 elimination liquid S for replacing A binding resin fusibility solvent and a phosphoric acid as it is It was alike and the elimination liquid U using the aluminum-oxide pigment 1.8 weight section (and ion-exchange-water 16.2 weight section) of the Pori aluminum-hydroxide compound for replacing was prepared (each of these elimination liquid the about 1.8 weight section by the aluminum-oxide anhydride and phosphoric-acid active principle conversion, respectively). And the source of aluminum and phosphagen of the 3.4 weight sections will be contained. Each of these elimination liquid was the uneven liquids with which the white granular object sedimented.

[0046] Gum liquid was applied to the whole surface, after applying these three sorts of elimination liquid to the suitable image section of the printing version which carried out production platemaking in the example 1 like the example 4 and carrying out image elimination. The support surface of a part which blanking time was almost as quicker as elimination liquid S an EQC or a little, and elimination liquid contacted was not eroded with elimination liquid, but the image was eliminated, so that it could not distinguish from the elimination liquid non-contact section at all. However, when the printing version which carried out image elimination using these elimination liquid was printed, with elimination liquid T, an elimination image began to be gradually printed from printing initiation, the elimination image re-appeared partially also in elimination liquid U, and the good printed matter with which the image was eliminated to the last like the example 4 was not obtained.

[0047] The pyrophosphoric acid used in the example 5 example 1 was changed to phosphorous acid, and elimination liquid V was produced in the same procedure as an example 1. Moreover, a methanol/2-methoxyethanol was similarly changed to the ethanol / N,N-dimethylacetamide / oxo-run mixed liquor of this weight (weight ratio 7:2:1), and elimination liquid W was prepared in the same procedure as an example 1. Next, when image elimination of the printing version which carried out production platemaking in the example 1 using these elimination liquid was performed, both sides have eliminated blanking time completely within 20 seconds. Moreover, generating of a printing greasing did not have the part to which the elimination liquid of that circumference non-image section base material adhered, either, without an image re-appearing into both elimination parts, when this printing version was printed. Furthermore, when printing was resumed after applying these elimination liquid to the image section which usually once stopped the printing machine in printing, and carried out eradication removal of the ink of a printing plate lightly and eliminating an image, the good printed matter which is satisfactory at all was obtained like the example [that an image is eliminated] 1.

[0048] After [which serves as solid content coverage 4 g/m2 by extrusion coater] carrying out

appearance spreading, 90 degrees C of photoconductivity constituents given in Table 6 which the base material surface treatment side produced in the example 6 example 1 was made to distribute in paint SHIEIKA for 1 hour were dried for 3 minutes, and the elution mold electrophotography lithography version B was produced.

[0049]

[Table 6]

組 成 物	重量部
ベンジルメタクリレート／メタクリル酸共重合体 (単量体重量比1:1、分子量1万)	6.5
χ型無金属フタロシアニン (実施例1と同製品)	1.5
酢酸2-メトキシエチル	60
2-プロパノール	22

[0050] Shade like an example 1 and the obtained elution mold electrophotography lithography version B is warmed. After [when surface potential becomes abbreviation +350V in the dark place after radiationnal cooling] carrying out appearance electrification, a negative image is exposed with tungsten light. Immediately, using a positive charge toner (the Fuji Photo Film make, ELP-TX1), liquid reversal development is performed, cold blast desiccation is carried out, heat fixing was carried out further and the toner image was made to form on a photoconduction layer after removing a toner dispersion medium. About the above toner development finishing printing version, it was eluted using the eluate given in Table 7.

[0051]

[Table 7]

溶 出 液 処 方	重量部
珪酸カリウム水溶液 (SiO ₂ 分30重量%、モル比2.5)	4.5
水酸化カリウム	1.0
エタノール	10
イオン交換水	84.5

[0052] The agent of the formula shown in Table 8 was prepared like the example 1, and the elimination liquid (elimination liquid X) distributed to homogeneity was obtained. Next, after attaching elimination liquid to the cotton swab and eliminating the suitable image section of the printing version obtained in the top, the protection gum liquid used in the example 1 was applied to the whole surface. The support surface of a part which elimination liquid contacted was not eroded with elimination liquid, but the image was eliminated, so that it could not distinguish from the elimination liquid non-contact section at all.

[0053]

[Table 8]

消 去 液 X 処 方	重量部
ポリ水酸化アルミニウム化合物10重量%液 (触媒化成工業(株)製、商品名:カタロイド-AS-2)	8
メタノール	42
N,N-ジメチルホルムアミド	20
1-ブタノール	15
亜リン酸	15

[0054] elimination was completed -- it attached the printing version and printed with the offset press of an example 1. Consequently, as for the elimination part, by printing, generating of a greasing was not usually seen for the part to which the elimination liquid of the circumference non-image section base

material adhered at all like the example 1, either, without an image appearing again. Then, when it printed further after applying elimination liquid X to the image section which carried out eradication removal of the ink of a printing plate lightly and eliminating an image with ink removal liquid, the good printed matter which is satisfactory at all was obtained. next -- without it carries out gum length of this printing version -- 50 degrees C -- warming -- although printed again the back, without the image of an elimination part appearing again, generating of a greasing was not seen for the part to which the elimination liquid of that circumference non-image section base material adhered at all, either, but good printed matter was obtained completely like the example 1.

[0055] The elimination liquid Y using the concentrated hydrochloric acid of the amount of the said active principles of the phosphorous acid which is an acid phosphorus oxide compound in elimination liquid X given in the example of comparison 2 example 6 table 8 for replacing The place which produced the elimination liquid Z using 3 and 5-dihydroxybenzoic acid similarly, and looked at erasability like the example 6, The support surface of a part which blanking time was almost as quicker as elimination liquid X an EQC or a little, and elimination liquid contacted was not eroded with elimination liquid, but the image was eliminated, so that it could not distinguish from the elimination liquid non-contact section at all. However, when the printing version which carried out image elimination using these elimination liquid was printed, an elimination image began to be gradually printed for both elimination liquid from printing initiation, and the printed matter by which image elimination was carried out to the last like the example 6 was not obtained.

[0056] Eliminated the image of the printing version which carried out production platemaking in the example 1 using the elimination liquid X prepared in the elimination liquid M prepared in the elimination liquid A prepared in the example 7 example 1, and the example 3, and the example 6, and it was made to dry, while elimination liquid had adhered to the base material, when elimination was completed, and gum liquid was not applied to this part. After leaving the printing version [finishing / this elimination] for one week at a room temperature, it printed on an example 1 and these conditions. Consequently, even if it did not perform gum length into an elimination part, the erasability excellent in the printing version preservation (placing version) nature in which neither an elimination liquid elimination part nor the part to which the elimination liquid of the circumference non-image section base material adhered also has generating of a printing greasing was shown.

[0057]

[Effect of the Invention] If the image section of the elution mold electrophotography lithography version is processed with the elimination liquid for the elution mold electrophotography lithography versions of this invention as explained above It can carry out to that the correction elimination activity of the image section in the condition that printing ink is not completely wiped away in the condition that the gum coat after platemaking processing termination adhered, or printing is easy, and a short time. in printing, an image does not not only re-appear into an elimination part, but the good printed matter with which a greasing does not generate at all the part to which the elimination liquid of the circumference non-image section base material adhered, either is obtained -- Hideyasu -- effectiveness is brought about.

[Translation done.]